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EXAMINER

BOYKIN, TERRESSA M

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1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Response to Arguments

The instant application has been transferred. Currently it is being examined by Terressa Boykin. Upon reconsideration, and in view of an updated review of the art, the Examiner has opted to make the following new ground of rejection. She apologizes for the unintentional delay in prosecution.

It is noted, however, that applicant's arguments, which have been fully considered, do not put the case in condition for allowance. For allowance purposes, after considering the previous rejection as well as applicants' arguments, claim 1 as currently recited remains so broadly set forth that the claim continues to be interpreted by present Examiner as anticipated by the references while remaining within the scope of the specification. Additionally, note that it is the opinion of the examiner that the language "RPET" or "recycled polyethylene terephthalate" may be interpreted as a polymer blend existing during the preparation of "new" polyethylene terephthalate however *during* a process where recycling occurs. If the applicants blend is a result of crushed particles from a container or plastic etc. It is not clear how or why the claimed particles would be distinguishable over "new" particles of PET having the same diameter or size. Further, due to the prevailing and increasing concerns over the environment, it would be an obvious choice to use leftover or recyclable particles.

It should be noted that in order to prosecute the case resourcefully and expediently while giving the applicants the best possible search, it is imperative and practical for the applicants to clarify how the particles distinguish over the prior art in light of the Examiner's concerns above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 5075075 see abstract, cols. 1-6 and claims; USP 5565158 see abstract, and cols. 1-4.

In addition to the previous rejection it is noted by the present Examiner that the reference is directed to scrap plastic materials including thermoplastic and cured thermosetting components are recycled and molded into products of predetermined shape, without the necessity of separating the different plastics from one another, by a process of shredding and milling the mixture to reduce it to a fine particle size, homogenizing the fine particle size mixture into a free flowing macro homogenous powder form, warming the homogenized mixture to an elevated temperature but at which it maintains its free flowing condition, dry blending the warm mixture with a reinforcing material or a filler and then compression molding the blend at elevated temperatures and pressures into a product of pre-determined shape.

It is noted that the process includes the shredding and milling of the mixture to reduce it to a fine particle size such that substantially all the particles thereof have a maximum dimension not greater than about 1 mm; homogenizing the fine particle size mixture so formed into a free flowing, macro homogeneous powdered form; dry blending the warm mixture with at least one additive material selected from reinforcing materials and fillers in an amount such that the blend contains at least 10% by weight of homogenized

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thermoplastic components mixture, and forming an intimately dispersed blend thereof and compression molding the blend at elevated temperatures and pressures into a product of predetermined shape.

The macro homogeneous product formed during the process of the present invention is a powdered, free flowing particulate material.

The scrap materials which can be recycled and used in the present invention can be of very wide and diverse composition. They should preferably contain a minimum of 20% by weight of thermoplastics materials, such as polyethylene, polypropylene, polystyrene, impact polystyrene, polyvinyl chloride, acrylonitrile-butadiene-styrene resins, expanded polypropylene, polyamides such as nylon 66, ***polyesters such as polyethylene terephthalate*** or polybutylene terephthalate, polyacrylates, polymethylmethacrylates, polyacrylonitrile, etc., and mixtures of two or more thereof; in fact, typical plastics and plastics mixtures which would be found in a random sampling of household wastes and industrial plastics scraps. They can contain other scrap materials also, such as waste paper, cellulosic fibers, rayons, clay, ceramics, glass, metals such as steel, aluminum and brass; and vegetable materials as commonly found in household and industrial wastes.

The mixed scrap material is first shredded and milled so as to reduce its particle size below 1 mm maximum dimension, and preferably below 0.5 mm maximum dimension. This can be done in a conventional shredder or milling machine. The material is then subsequently advantageously screened, to remove therefrom particles having a size greater than 1 mm, i.e. materials whose particle size has not been sufficiently reduced by the conventional shredding and milling process. It is normally economically advantageous to remove such particles rather than to expend excess energies on a special milling process which will reduce all of the particles to the 1 mm size or less.

Next, a homogenization process takes place using conventional high speed mixing

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and homogenizing apparatus. This can be done in a dry blender, or in a wet slurry form, e.g. using an aqueous slurry which can also serve as a cleaning and separation medium, to dissolve away some of the components of the mixture which are water soluble and which would not contribute to the properties of the final product. As a result of this process, a macro homogeneous, powdered material is formed of the mixed scrap.

If a wet homogenizing process has been adopted, the mixture is dried. In any event, a substantially free-flowing powdered particulate material is obtained.

The fillers can also be impregnated with uncured liquid/solid thermoset resins (such as phenolics, melamine, polyurethanes etc.) so that when additional heat is applied during the compression molding/laminating process to soften or melt the thermoplastic portion of the blend, this will also initiate the curing process of the uncured thermoset resins. This adds additional strength to the product at high temperatures, thus adding temperature resistance to the finished product.

When filler alone is being used, without reinforcement, an amount of 70 parts by weight of the filler (i.e. total of all non-thermoplastic and non-reinforcing materials), thereby providing for a minimum 30 parts by weight of scrap-derived thermoplastics, should not be exceeded. A preferred range of all non-thermoplastic components is from 25-70% by weight of the total blend. A typical composition according to the invention comprises 25 parts by weight of mixed thermoplastic derived from the homogenized scrap, 25 parts by weight of other scrap material including thermosets, and 50 parts by weight of optionally pre-treated reinforcing material.

The reinforcing materials are preheated to at least the same temperature as that to which the mixed thermoplastic scrap is preheated, prior to blending these two materials together. This avoids the undesirable effects of cooling of the homogenized scrap mixture on contact with the reinforcements. In fact, in some instances, there is

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advantage to heating the reinforcing material to a temperature above the softening-melting point of the thermoplastic components of the mixed homogenized scrap material, so that the thermoplastic particles therein will stick to the surface of the reinforcing material or fillers, and coat them. When this is done, a molding compound is prepared which can be directly processed in a compression mold or die, or a double belt press or calender.

See also claims 2, 5, 8, 9, 12, 13,14, 15,and 16.

USP 5565158 discloses a process of recycling a multicomponent mixed polymer waste material involves the steps of agglomerating the multicomponent mixed polymer waste material and spinning the agglomerate to form yarn, wherein the multicomponent mixed polymer waste material contains a blend of at least two incompatible polymers.

Preferably, the material agglomerated and spun in the process of this invention is a bicomponent incompatible mixed polymer fibrous material. A particular polymer mixture which can be treated in accordance with this invention is a blend of polyamide (nylon) and polyester. Because of the large amounts of COLBACK yarn scrap being sent to landfills each year, as discussed previously herein, it is particularly desirable to treat COLBACK yarn scrap (23% by weight nylon 6 and 77% by weight PET) according to the method of the present invention.

The polymer mixture agglomerated in the present invention can contain from about 5 percent by weight to about 95 percent by weight of one polymer and from about 95 percent by weight to about 5 percent by weight of the second polymer. Nylon /PET mixtures treated in accordance with the method of this invention can comprise from about 20 percent by weight to about 25 percent by weight of nylon and from about 75 percent by weight to about 80 percent by weight of PET.

In the extruder, the agglomerate is typically subjected to an apparent mixing shear

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sufficient to maintain the particle size in the desired range. The agglomerate contains particles having an average diameter preferably ranging from about 1 to about 5 millimeters, more preferably ranging from about 1 to about 3 millimeters, and most preferably about 3 millimeters.

See Table's I, III and VII. The data presented in Table VII illustrates that the smallest globules can occur when the PET and nylon viscosities are most similar. The smaller size of the globules in the virgin polymer mixture were expected to result in a more homogenous and easier spinning blend. However, while the virgin polymer blends gave generally smaller globule sizes, these blends would not spin. Thus, an effect other than blend morphology appears to be affecting the spinning ability of the blend.

See claims 1. 3. 11. 29. 31. 32. 33, 37. 38. 39. 40. 41.

Thus, each of the references discloses a process using RPET prepared from the same components as claimed by applicants. Since the disclosed average mean particle sizes are expressed differently, they nevertheless appear to overlap or fall within the range as claimed and thus are not distinguishable over the prior art. In view of the above, there appears to be no significant difference between the reference(s) and that which is claimed by applicant(s). The specialty additive may be anticipated by any number of additives as noted by each of the reference such as fillers, reinforcing materials etc. as well as any additive commonly used in the art. Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1- 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5075057 see abstract, claims; or USP 5565158 see abstract and claims (as well as that which is included in the above).

The reference discloses the same process as claimed by applicants as noted above, except for the particular average mean particle size from about 500 microns to about 5 microns as claimed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a variety of particle sizes including that which is claimed since the particle size as disclosed in the reference falls within that which is claimed by applicants and further, due to the prevailing and increasing concerns over the environment, it would be an obvious choice to use left-over or recyclable particles of varying sizes and average mean particle sizes including the range as claimed since such overlaps or is inclusive of that of the reference.

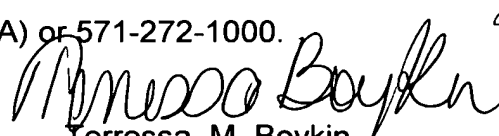
Consequently, the claimed invention cannot be deemed as unobvious and accordingly is unpatentable.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terressa M. Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday-Thursday 10-5:30 Friday (work at home).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Terressa M. Boykin
Primary Examiner
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